Expert Advice For the Automobile Owner

Queries and Replies Covering Matters of Importance to the Man Who Runs a Car

What are the methods used in finding the tie rod bolt center position in relation to king bolt center on a front axle for both tie rod in front and tie rod in rear of the axle? Are the wheel base and tread of a car of importance in finding these positions?

The steering arms are aligned so that their center lines intersect at the central point of the rear axle. This alignment is independent to some extent of the wheel alignment, as both wheels may be correctly cambered and gathered, with one of the steering arms at a faulty angle. In moving straight ahead this would have no effect, but in turning the wheels do not run on a true circle, so that both wheels are subjected to a tire grinding. The same effect results from the tie being too short or too long.

To determine whether or not the steering connections are properly made it is necessary to know that the angle of the steering arms and the axle spindles is right, and that the tie rod is of the right length. Both of these depend upon the distance apart of the steering king bolts and on the wheel base of the car.

Measuring the angles of the steering car, as made with the axle, the correct angle that the steering arms on the car should make with the car is found. Frequently in lining up the wheels of a car the steering connections are thrown out by lengthening or shortening the tie rod to get the proper gather. This should never be done, as improper gather is usually the result of bent wheel spindles. The tire wear resultant from bad wheel setting is obviated at the expense of a serious wear on account of faulty steering.

How can I prevent the body of my car from squeaking, the body being all steel except the dashboard? The squeaking appears to be all in the dashboard.

Body squeaks can be eliminated by lubricating the rubbing parts that cause this noise or by stopping their relative movement. As a rule, though, it is extremely difficult to locate the exact point at which the noise occurs. Get some one to listen for the squeaks while you drive the car slowly over a rough road. Having found where the trouble is, a little lubricating oil or grease will stop the noise, or if it is due to the looseness of adjacent parts the squeaks can be stopped by tightening up these parts.

Can you suggest something which will clean out the radiator of my car, which has become clogged? Have tried soda without effect.

The proper solution to use in cleaning out a clogged radiator depends upon what particular impurity has clogged it up. Usually this happens through a deposit of solid material from the cooling water which forms on the interior of the entire cooling system. Soda quite frequently will dissolve this, but some deposits do not respond to this treatment. The situation is the same as that of steam boilers, and some of the boiler compounds probably will be valuable. It is suggested that you send a sample of the water employed to a water compound manufacturer, who can then, upon analysis of the water, determine the proper cleaning compound to supply.

There are a number of radiator cleaners manufactured especially for motor cars, and they may be beneficial.

Is the clutch of the disk type if the car is managed by the clutch coming against a round flat piece of metal?

No. The disk clutch consists of a series of metal plates, face to face, alternate ones being connected to the engine and the others to the transmission. When these are pressed together by a spring they all turn together. The device you refer to is the clutch brake to keep the clutch from spinning.

My motor overheats. It steams when driven eight or ten miles. Would too much oil causes this, as it smokes at the exhaust?

The use of too much oil for any length of time will cause carbon to deposit on the piston and cylinder head and thus cause the motor to heat. If misfiring is evident and loss of power, then treat the motor as one badly carbonized. However, the heating may be due to other things besides carbon. The motor should not be operated with the spark retarded too far, and the brakes should not drag. The water system must, of course, be free from obstructions. If the pistons are poorly fitted or the rings worn excessively the oil will work up into the combustion chamber, deposit carbon and cause heating. Try to do as little intermediate and low gear work as possible.

I have always considered that speed was an indication of power, but my car's performance on hills does not bear me out in this. Why is it?

Regarding the relation of speed and horsepower, there is no definite interrelationship between the two and no rule which states that the maximum horsepower is being exerted at maximum speed. In fact, the contrary is the case. The motor may continue to revolve at a greater speed after the power curve has reached its peak.

What is the reason for heating the mixture before it goes to the cylinders for combustion?

The only reason that we preheat fuel is to thoroughly vaporize it. In other words, for a given volume and a given mixture a great amount of heat units will be contained in the cooler charge provided that both are completely vaporized. The reason for this is that the heat expands the charge, thereby permitting a smaller number of units of discharge to be contained in a given volume. The fact that some of the heat units which would ordinarily be lost are returned to actual use by preheating the charge is a factor in the situation and does reduce the difference between the two conditions, but it is doubtful if as many heat units would be given up in this manner as would be lost by having a preheated charge. The practical side of the question, however, is one which must be looked upon. With the gasoline that we are now getting it is necessary to use heated air if the best results are to be attained; otherwise the fuel will not be vaporized, especially during cold weather.

How many teeth are needed for a two to one and two and a half to one ratio?

The gears should be such that there are twice as many teeth on the large gear as there are on the small gear, in order to get a two to one ratio. For a two and one-half to one there should be two and one-half times as many teeth on the large gear as there are on the small one. The ratio may be obtained with an infinite number of combinations. The size of the gearcase will determine the size of the gears, and then the shape and distance between teeth must be found to get the number of teeth needed.

Is there any possible way in which I can install a pressure feed oiling system on my car? It has a splash system at present.

It might be possible to install this pressure feed, but it would not be advisable. In the first place, a great amount of special engineering work would be required and many new parts, such as a hollow crankshaft and the pump itself. This would entail a great outlay of money which would not be justifiable, because, after the system had been worked out and installed on the motor, the undertaking would, in every sense of the word, be an experiment. Any troubles you may have been having with your oiling are probably not due to the original design, but to some local defect which has come up and which can probably be readily cured in a much more simple way than by altering the entire system.

Should the clutch be thrown out on rough roads?

The clutch should be thrown out and the brake applied slightly when deep ruts are encountered, and many drivers make riding easier by periodically throwing the clutch on rough roads. If the motor will pull slowly there is no reason, however, for throwing out the clutch.

What valve timing should one use on a two cylinder opposed motor with a bore of four and a quarter and a stroke of four and a half?

Since the valve timing which will give ideal results for any given motor is a variable quantity and depends largely upon such details as manifold design, the only thing which can be done is to give an approximate timing, from which you can vary in one direction or the other until you attain the best results. If the cams are already made and in the motor you can only place them so that the valve openings will correspond with those given and allow the closing to take care of itself. A fairly average timing which should give good results is as follows: Intake valve opens ten degrees after upper dead center and closes thirty-five degrees past lower dead center. Exhaust valve opens forty degrees before lower center and closes five degrees past upper center.

Does it harm a high tension magneto—that is, where a car is run by one alone—to shut off the spark going down hill and brake with your gears? Is this the best thing to do on a steep hill? And could this harm the cylinders?

It does not harm a high tension magneto to do this, as no mechanical strain is put upon it, and naturally it does not generate current when switched off. The practice of using the motor as a brake will not harm the cylinders, but it is said to put considerable wear on the gears, due to the reversed action of the reduction—that is, if the car should be geared four to one when the motor is acting as a brake the reduction acts in an opposite direction and becomes one to four.

How can I stop rattling of 'scissors' type shock absorbers without tightening up the bolts until the car rides hard?

To stop rattling of scissors type shock absorbers without taking up on the bolts until the car is hard riding, insert two thin rubber disks cut from an old tube, on each side of each wooden washer as furnished.

KELLISON

(Continued from page 1, second sec.)

and otherwise conspicuous in scholastic circles, but most noted as the finest football tackle that the state of West Virginia has ever produced, as will be evidenced by the fact that for three years straight he has been chosen on the "All West Virginia" team.

Kellison's coming to Wesleyan was quite an accident. He was nineteen years of age at the time he entered and for a year or so previous to this time had been doing a man's work in the vast lumber woods of his native county. He had been reared in the heart of the hardwood region of West Virginia and on account of his wonderful physique had become known as one of the most hardy as well as one of the most skilled of the woodmen of the whole country round. It happened that a native of Buckeye, one Joshua Enoch Buckley had a year or so previous to this been enticed to Wesleyan to try his fortune with Dame Learning, and finding the water good and being mindful of the lean years Wesleyan had been having in football championships, conceived the idea of bringing Kellison into the fold. He spent his vacation at the job, but with September and the football season Kellison appeared. Buckley is now a law student doing post graduate work at Washington and Lee University and it is needless to digress to the point of adding that he is not looked upon as having been just as considerate as he might of the good name of that worthy Virginia institution. However, at the start, Kellison was not what would be termed a clever football player. He was slow and awkward and had never taken a great deal of interest in athletics, and was consequently out of tune with the general purpose of football and related activities. However, he learned rapidly. Kellison was always a reliable student in school and a football player who never forgot the ethics of college athletics, and so he prospered. The fact that he is to pilot the Wesleyan college team as captain in the coming season of 1915 is sufficient evidence of the prestige and recognition that he has gained. That he is a member of the senior class, and will receive his bachelor of science degree next June is a much more honorable distinction. As a leader in scholastic as well as athletic circles at Wesleyan, Kellison is a most noteworthy example of what perseverance and industry will accomplish even for hotwse ETAOIN ETAOIN N even for those whose possibilities in their early years seem limited.

Kellison is ambitious to lead a championship team from the field when the final curtain is down at Fairmont on Thanksgiving day. West Virginia University exhibiting her old gold and blue is comparable with the man with the "Tuckahoe" accent, to the crimson flag used by the Spanish toreador, and down at Buckeye, Kellison works early and late that this year may not only be his last, but may be his best.

MANY PLAYERS

(Continued from page 1, 2nd section)

ment. With the addition of forty-seven names to the eligible list a few days ago, there are over 300 golfers rated at five strokes and under and there is every indication that this year's contest will be unusually interesting.

For the first time since its inception the national event will begin a full week before the day set for the final round this year. In order to cope successfully against the congestion hitherto experienced by the officials in handling big fields in the elimination round, the committee has wisely arranged for a preliminary qualifying round of eighteen holes to be played next Saturday. The best sixty-four scores that day will entitle those who make them to take part in the thirty-six hole qualifying round on Monday, August 30, and the thirty-two players having the best scores in the second days' play will qualify for participation in the thirty-six hole match play rounds for the championship during the remainder of the week.

SYRACUSE ELEVEN

Will Travel Many Thousand Miles during the Coming Football Season.

The members of the Syracuse University football team will be able to qualify as veteran globe trotters when the 1915 gridiron season has ended. No eastern college eleven of recent years has faced as many and as long jumps as the Orange schedule calls for this fall, with a season which begins at home on September 25 and ends at Portland, Ore., on December 1.

The team starts touring on October 9 when Princeton will be played at Princeton. The following Saturday Rochested will be met at home and a week later the Salt Lake City eleven will go to Providence to face Brown. Ann Arbor will be visited on October 30, for the purpose of playing Yost's University of Michigan gridiron clan. The first two Saturdays of November will be spent at Syracuse entertaining Mt. Union and Colgate teams. Dartmouth will follow on November 20 and then the Orange eleven will trek westward. Thanksgiving Day will see the team engaged with the University of Montana players at Missoula and on December, 1 Syracuse will close an exceedingly busy season by tackling the Oregon Agricultural College team at Portland, Ore,

NOTICE TO CONTRACTORS.

Bids will be taken up to 12 o'clock, noon, August 28th, 1915, by the County Court of Harrison County, West Virginia, at their office or the office of the County Road Engineer, at Clarksburg, West Virginia, for the construction of the abutments and piers for a steel bridge across the West Fork river at Zeising in said county and state. Plans and specifications will be seen at the office of the Road Engineer. A certified check to the amount of $500.00 will be required with each bid. The right is reserved to reject any or all bids.

C. C. FITTRO,
County Road Engineer.

Many Gridiron Battles Will Be Fought by the Leading College Teams

During the Next Three Months When More Than 1,000 Games Will Be Played.

NEW YORK, Aug. 21.—With the issuing of mobilization orders for the moleskin brigades of more than a thousand colleges and schools throughout the country, football leaders are preparing for the greatest gridiron campaign in the history of the sport. Within the next few weeks the initial games of the season will be played and each succeeding Saturday witness a steadily increasing schedule of contests until the crest of the sport is reached late in November and the play declines to the final matches of early December.

Not since the days of the seventies when American intercollegiate football was born, has there been an autumn which held forth as much in the way of gridiron activity as that of 1915. According to the official schedule prepared by the rules committee close to 3,000 games will be played by leading colleges and schools teams of the United States between September 18 and December 4.

More Than 1,000 Games.

During this period of a trifle less than eighty days there will be more than 1,000 games between the elevens of the principal universities and colleges and twice that many contests among the leading high school and preparatory academies. Games are scheduled for every day in the week except Sunday and if evenly divided between Monday and Saturday, would average close to forty per day.

The honor of opening the season falls to four Pennsylvania institutions for the Carlisle Indians play Albright and Bucknell meets Bloomsburg normal school in the initial games of the autumn on Saturday September 18. One week later the activity will spread to scores of lime marked fields, for more than one hundred teams play the opening games of their schedules including Harvard, Princeton, Yale, Pennsylvania, Dartmouth, Tennessee, Virginia, Vanderbilt, Oberlin, Colorado, Oregon and many other eastern, western and southern elevens.

Cornell Begins Late.

Cornell will not begin play until the final days of the month, but Saturday, Ocotber 2, will see the leading university and college teams of all sections lining up in contests, some of which can hardly be classed as preliminary games. Princeton will meet Rutgers whose team has been looking forward to this match for almost a year. The day will also mark the debut of the United States military and naval academy elevens against Holy Cross and Georgetown respectively. Still other teams to take the field for the initial games include Illinois, Minnesota, Wisconsin, Texas, Nebraska, Mississippi and Missouri.

Michigan, like Cornell, has selected a mid-week day for her opening game, but will join the Saturday brigade on October 9 when a number of promising contests are scheduled. While the baseball fans are anxiously awaiting the outcome of the world's series, football followers will watch with interest the result of such games as Cornell vs. Williams; Harvard vs. Carlisle; Princeton vs. Syracuse; Navy vs. Pittsburg; Penn State vs. Pennsylvania; Minnesota vs. Iowa; Notre Dame vs. Haskell and Yale vs. Lehigh.

Yale Meets W. and J.

A week later the leading games fo Saturday will bring together Colgate and West Point; Pennsylvania and Navy; Chicago and Indiana; Princeton and Lafayette; Minnesota and South Dakota; Alabama and Mississippi and Wisconsin and Purdue. The leading games of October 23 include Harvard vs. Cornell; Princeton vs. Dartmouth; Army vs. Georgetown; Navy vs. Virginia Poly; Chicago vs. Purdue; Michigan vs. Michigan Aggies; Pennsylvania vs. Pittsburg; Texas vs. Oklahoma; Yale vs. Washington and Jefferson; Wisconsin vs. Ohio State; Georgia vs. Virginia, and Minnesota vs. Iowa.

The final Saturday of October is marked by several intersectional games, Michigan meets Syracuse; Cornell faces Virginia Poly, and the Michigan Aggies play the eleven of the Oregon Agricultural College. Other contests in the various sections of the country bring together Harvard and Penn State; Chicago and Wisconsin; Vanderbilt and Tennessee; Yale and Colgate; Illinois and Minnesota; Princeton and Williams and Dartmouth vs. Amherst.

Princeton Meets Harvard.

The opening of November finds the leading elevens gyrating together with the result that on Saturday November 6 Pennsylvania and Dartmouth play at Boston; Princeton and Harvard clash at Princeton; Notre Dame travels to West Point to meet the Army; Cornell goes West to play Michigan; Chicago meets the Haskell Indians; Virginia and Vanderbilt line up; Yale has Brown as an opponent; Oregon will face Washington and Tennessee will play South Carolina.

Yale and Princeton will be the headliners in the East on November 13 while Minnesota and Chicago will play the leading roles in the middle west. Other important contests on the same day include Washington and Lee and Cornell; Brown at Harvard; Michigan at Pennsylvania; Colgate at Syracuse; Penn State at Lafayette; South Dakota at North Dakota; Amherst at Williams, and Illinois at Wisconsin.

Turkey Day Games.

The final games of many college elevens will be played on Saturday November 20. The annual contest between Harvard and Yale at Cambridge stands pre-eminent on the day's cord but there are other games of importance scheduled including Colgate at Georgetown; Dartmouth at Syracuse; Illinois at Chicago; Minnesota at Wisconsin; Denver at Colorado; Mississippi at Arkansas, and Missouri at Kansas.

Thanksgiving Day will see Pennsylvania and Cornell playing at Philadelphia; Carlisle Indians at Brown; Syracuse tackling the University of Montana at Missouri; Notre Dame playing Texas at Austin; Mississippi facing Alabama at Birmingham; Penn State at Pittsburg; Kentucky State at Tennessee; Louisiana at Tulane; North Carolina at Virginia; Southern California playing the Oregon Aggies at San Francisco and Vanderbilt meeting the University of the South at Nashville.

Season Closes Late.

The season will close in the East on Saturday November 27 with the annual Army-Navy game, played in New York this year, but will continue for another week in the South and West. Notre Dame will close an autumn of much traveling by playing the Rice Institute at Houston, Tex.; the University of New Mexico will play the United States Indian school at Albuquerque on November 30 and the following day Syracuse will also wind up a season of many trips with a game against the Oregon Aggies at Portland, Ore. On Saturday December 4, the University of Southern California will meet Whittier at Los Angeles and with this contest ended, football taps will be sounded for another year.

OLDEST MASONIC HALL YET INTACT

Is at Fredericksburg, Va., Where Washington Was Made a Member.

In a prominent fraternal publication, "Masonic Tidings," there is an interesting letter published concerning the history of the organization of the Masonic lodge of Fredericksburg, Va. The letter was written by Mrs E. W. Gray to J. A. Watrous, of Milwaukee. Mrs. Gray is the wife of a prominent Virginia Mason, and of a prominent Virginia Mason. The letter says, in part:

"From the best authorities it is claimed that the original source of this lodge was that a dispensation was obtained from the Grand Lodge of Scotland and that this was the authority by which the lodge was held until it was regularly chartered by said grand lodge. The lodge held its meetings under the authority of this dispensary for six years, and made Masons, among others George Washington, George Weedon, Hugh Mercer, William Woodford, Thomas Posey, Gustavus Wallace, all of whom became generals or officers and were distinguished in the Revolutionary war. In the year 1758, Daniel Campbell, for many years master of the lodge, visited Scotland and at the request of the lodge applied for and obtained a charter for the lodge from the Grand Lodge of Scotland, which was dated July 21, 1758, and designated as the 'Lodge at Fredericks-Burg, Va.'

"In the year 1815 the present Masonic hall was completed, which stands on the corner of Princess Ann and Hanover street. George Washington receiving the first degree in Masonry on November 4, 1752, the second degree March 3, 1753, and the third degree August 4, 1753, and continued his membership in the lodge until the day of his death. The Bible used in these ceremonies is in possession of the lodge and well preserved. The Bible was printed by John Field, at Cambridge, in the year 1668.

"By order of this lodge, $5,000 was raised for a beautiful and faithful statue of Washington, in Masonic regalia, of white marble, by the Virginia artist, Hiram Powers, while he was in Rome, Italy. It was sent to Fredericksburg, but before it could be erected the war came on. It was sent to Richmond for safe keeping and perished in the terrible fire of April 3, 1865. My father was connected with this lodge and when he died at prayer at a church in Fredericksburg the brethren lifted him on their shoulders, carried him to the lodge and prepared him for burial."

Building Projects in State Are Reported

One Hundred Thousand Dollar Creamery Structure to Go Up at Huntington.

PITTSBURG, Aug. 21.—Building operations in West Virginia are reported as follows by the Construction Record:

Fairmont — Architect R. Gillis Jacobs building awarded to Fitzhugh & Brand, the contract for erecting a one-story brick motion picture theater on Main street for George H. Nelson. Cost about $5,000.

Beech Glenn—Architect George Ebeling, Wheeling, awarded to Buchon & Lehman, of Elm Grove, the contract for erecting a two-story stucco residence and garage for Miss Ada Owens. Cost $8,500.

Parkersburg — Architect D. W. Dailey, Lynn street, awarded to R. L. Brown, the contract for erecting a two-stoy bick esidence on Washington avenue and Latobe street for Captain Frank G. Davis. Cost $10,000.

Huntington—The C. D. Cooley Company, entury building, Pittsburg, will start plans about September 1, for a three-story brick building 120x160 feet to be built for the Wilson reamery Company. The work will cost about $100,000.

The Board of Commissioners of Cabell county, awarded to George Hinkle and to the Brubaker Construction Company, of Huntington, the contract for grading and paving to cost $250,000.

Architect A. F. Dickey, First National Bank building, is taking bids on erecting a two-story brick and tile residence on Tenth avenue for Mrs. M. T. Hayes, to cost $4,000.

Winding Gulf—Architect W. B. Smith, of Huntington, has completed plans for a two-story frame grade school building to be erected for the Winding Gulf Coal Company, to cost $5,000. Owner is now taking bids.

Logan—Architect William Loomis has plans in progress for a two-story and basement brick residence to be erected for Harvey Wright to cost $3,500. Ready for bids about September 1.

Dunbar—The Board of Education awarded to A. Finney, Institute, W. Va., the contract for erecting a two-story brick grade school building to cost $10,000. Plans by Architect Paul Egan, Quarrier street, Charleston.

Susanna for Children—Teething Children—Advertisement.